Gerhard (Wm Paul)

On Bathing

AND

Different Forms of Baths.

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DIFFERENT FORMS OF BATHS.

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On Bathing and Different Forms of Baths.

Motto: "*In balneis salus.*"

HISTORICAL NOTES ON BATHING.

THE practice of bathing has, since the earliest periods of history, been regarded as conducive to the health and welfare of the human race. Indeed, in some respects the ancients appreciated the value of bathing perhaps more even than we do; to them cleanliness of the body was a symbol of moral purity. In many religious rites regular bathing and ablutions of the body were made compulsory, and we find that baths and bath houses were established for this purpose in India, Persia, Assyria and in Egypt. Moses ordered regular ablutions of the body to be taken before the daily meals, before wedding festivities and birth celebrations, before entering the temple of worship and before all religious ceremonies. Hebrew girls and women were commanded by strict laws to bathe at regular monthly intervals, which custom prevails with the orthodox Jews even at the present day.

The Greeks considered the care of the body as quite necessary for a sound development of the mind. They had tub baths in the houses of the rich, public swimming baths used in winter, and during the summer took baths in the rivers. Warm baths are mentioned by Homerus, and a douche bath is said to be shown on a Grecian vase now in the Royal Museum of Berlin. Even medical baths were known at that time, as for instance the hot sulphur baths of Thermopylæ, which were used for the cure of diseases. The gymnasiums of the Greeks, devoted to athletic exercises, had generally baths attached to them, and they were used not as a mere matter of luxury, but chiefly for the sake of cleanliness and healthy exercise.

It is well known to what extent the Romans indulged in the luxury of baths, in their private houses as well as in magnificent public bath houses, planned on a grand scale, seldom excelled in our own age. The magnitude of such baths may be understood from a study of the ruins of the baths of Emperors Titus, Caracalla, Diocletianus,

nd the Thermæ of Pompeii. Even in their foreign provinces the Romans erected large bath houses. And again we find it related by the Roman historical writer, Tacitus, that the Germans enjoyed taking daily baths and swimming exercises in the rivers, in which both sexes bathed promiscuously. Up to the beginning of the Middle Ages bathing remained popular, but subsequently the practice degenerated. It is only since the middle of the present century that the healthful influence of bathing has been again recognized, and public bath houses are now once more on the increase, due largely to the recommendation and urging of physicians and sanitarians.

PURPOSES OF BATHING.

Let us, by way of introduction, make a brief inquiry into the *objects of bathing*. We may readily distinguish two chief purposes, viz.:

(1). The maintenance of health of the human body; and (2) the cure of disease or the restoration of health.

It is largely with the former that we are concerned in this article.

The preservation of health and prevention of disease by bathing are accomplished in several ways, of which the following are the more important ones. Bathing is practiced

1. For the sake of cleanliness of the surface of the body.
2. For the sake of promoting the proper functions of the skin.
3. For the sake of cooling and refreshing, and the general exhilarating and stimulating, or sometimes soothing, effect.
4. For the sake of increasing the blood circulation and the bodily heat.
5. For the sake of hardening the skin against atmospheric influences.
6. For the sake of bodily athletic exercise, as in swimming.

In other words, baths are taken, not merely with a view to personal cleanliness—although that must always remain the one object of paramount importance—but they are also indulged in in order to refresh and cool the body, to strengthen and invigorate the bodily system, to open up the pores of the skin and regulate the bodily temperature, to make the muscles more pliable, to render the body less sensitive to changes of temperature, to give a higher degree of endurance, and finally, for the enjoyment of healthy muscular exercise.

Warm tub baths and showers are representative forms of baths taken chiefly to obtain and preserve cleanliness, while swimming baths, river and sea baths are the forms of baths largely taken for the sake of pleasurable exercise, for the hardening and strengthening of the body, and for the general comfort as well as cooling and stimulating effect derived from the same.

In the following remarks reference will almost entirely be made to the principal object of bathing, viz., the cleansing of the surface of the body, consisting in the removal of all dust, dirt, perspiration and dead scarfskin. This leads us naturally to say a few words in general about bodily cleanliness.

ON PERSONAL CLEANLINESS.

The periodical and thorough cleansing of the surface of the human body by bathing and general ablutions is a condition for continued health, and becomes a potent factor in prolonging life. This was recognized at all times, and Hippocrates expressed this view in his well-known requirements relating to purity of soil, of air, of water, of food and of the body. The best way of preventing disease or epidemics consists in removing quickly all manner of dirt and refuse, whether in the streets, in the houses or on the human body. Uncleanliness of the body may lead to skin diseases, and often causes offensive exhalations due to the putrefaction of the dirt on the skin and in the clothing. It is a frequent source of contamination of the air of closed apartments, and this is particularly apparent in places where many persons assemble or congregate together, as in schools, theatres, churches and hospitals. Indeed, bodily exhalations, due to lack of cleanliness of body and clothing, pollute the air of rooms often to such an extent that the best and most elaborate schemes of ventilation fail utterly, as for instance in schoolrooms, in prisons, military barracks and in workshops.

Cleanliness of body is, without doubt, the most important step to be taken for the prevention of the evils associated with foul air of rooms, as it is indispensable for the development and strengthening of the young and the maintenance of health in grown persons.

In order to understand still better the effect of bodily ablutions and baths on the health of the system, it is necessary to consider the structure and function of the human skin.

THE SKIN AND ITS FUNCTIONS.

Briefly stated, the skin forms the outer surface of the human body, and as such is in constant and more or less intimate contact with the air and with the objects which surround us.

The skin may be taken as being composed of two layers, namely, an outer, thin layer, of innumerable cells or scales, the scarfskin or so-called *epidermis*, and the inside or deeper layer, the true skin or *derma*, which contains the blood vessels and nerves, and on the upper surface of which are ridges or papillæ. Underneath the true skin is a mass of adipose tissue, in which are located the roots of the hair and the sweat and sebaceous glands, leading to the outer surface. The outer skin is subject to abrasion or renewal, and is constantly shed off. Of the two varieties of glands in the skin the sweat glands accomplish the object of cutaneous perspiration, whereas the oily or sebaceous glands are intended to keep the skin soft and flexible. Both kinds of glands open on the surface in the so-called pores of the skin, and their secretion or discharge is constantly going on in healthy individuals.

Now, what are the functions of the skin? First, it encloses and protects the internal organs against injury; second, it regulates the temperature of the body by perspiration and evaporation; third, it eliminates waste materials from the body and thus acts as an organ of excretion and of purification of the system; fourth, it is the organ of feeling, of touch and of temperature.

If the regular action of the skin is suppressed or interfered with, serious detriment to health may follow. This is precisely what may happen if the cleaning of the skin is neglected; the pores become clogged, as it were, and the functions of the skin cease to be performed with sufficient regularity.

The exudations from the skin and the oily secretions of the sebaceous glands, together with the dead particles of the scarfskin, mingle with the dirt and dust floating in the air, to form an incrustation more or less thick which closes up the outer openings or pores and thus hinders perspiration, besides causing bad odors due to putrefaction of the mixture, and sometimes inducing inflammation or boils on the skin, or becoming the seat of bacilli.

A part of the dirt crust is probably abrased and attaches to the underwear of persons, and is thus removed with the change of linen,

in the laundry. From this it is apparent that the less often a change of linen is accomplished the oftener a bath should be taken. It is, however, unfortunately true, that where underclothing is not removed sufficiently often ablutions are also seldom indulged in. Our skin can only perform its functions well if it is kept clean and free from all putrefactive accumulations. This is accomplished by a liberal use of warm water and soap. Warm water dissolves dirt much quicker and better than cold water, therefore a warm bath is required to clean the skin and to remove the used-up particles of the scarfskin. The alkalies of soap help to dissolve and remove the greasy or fatty substances forming part of the dirt crust. The combined chemical and mechanical effect of water, soap and friction are needed to remove the mixture of dirt, skin secretions and epidermic scales on the skin surface, to prevent the clogging of the pores and to promote the proper performance of the functions of the skin.

It is evident, then, that the good influence which bathing exercises upon the health of the body is exerted first on the skin itself, and then through it upon the tissues and vital organs of the body. The care of the skin and the cleanliness of the body are seldom spontaneous, they must be taught like all other things. Many persons are too lazy to use soap and water, brush and comb, and the entire ablution of the body is not accomplished with sufficient regularity. According to Prof. Liebig the true degree of civilization of a people may be judged by the amount of soap (and let us add water) consumed annually. The enjoyment of regular complete cleansing of the body should be afforded to all classes of the population. It does not cost much to keep clean, and there is no good reason why the poor man should not be enabled to maintain cleanliness as well as the rich. Indeed, the laboring man is, owing to the nature of his work and to the increased perspiratory action of the skin due to muscular exercise, often in the midst of dirty surroundings, much more subject to dirt contamination, and therefore he requires, if anything, a more frequent change of underwear, and likewise more facilities for bodily ablution. We shall again discuss this point later on in speaking of people's baths, baths in tenements and in factories. That we are far from having reached anything like perfection in this respect is sufficiently attested by the common condition of the air in tenements, in lodging houses, in street and elevated railroad cars and on ferryboats, in schoolrooms, theatres and places

of worship. The organic emanations due to malodorous clothing or bedding are everywhere painfully apparent. It is, in fact, a matter of doubt what causes the largest amount of air pollution in a hall crowded with human beings, whether the product of combustion of illuminants and fuel for heat, or those of respiration, or finally those due to the perspiration and action of the skin!

DIFFERENT FORMS OF BATHS.

After this slight digression, made necessary in order to obtain a thorough understanding of one of the chief objects of bathing, we will now return to our subject and briefly review the different kinds and forms of baths and bathing appliances. But first we must give a general definition of the word "bathing." We understand by bathing the immersion of the human body, or parts of the same, in a liquid, generally water, or else the application of running or falling water to the body or some special part of the same. In a wider sense we can define bathing as a contact of the skin of the body during a more or less continued period of time, with any semi-liquid, liquid or gaseous substance (which thus includes mud baths, sand baths, air, steam and vapor baths), and we may finally include the application of sunlight and electricity.

Baths may be classified according to the medium used, according to temperature, according to the object, according to the form of bathing appliance, and finally, according to location.

A. As regards the substances used for bathing the body or parts of same, the most universally used medium is ordinary water which may be either fresh or salt), and next in frequency is hot air and the vapor of steam. One or more of these three agencies are employed in baths taken for their cleansing effect, as well as in all baths taken for the sake of the general care of the body or for healthful exercise. The use of other media is almost entirely restricted to medicinal baths, and includes not only water charged with salts, or metals or gases, such as the various mineral spring waters, but also mud, sand, brine, sunlight and electricity.

As regards the water required for bathing, it should be abundant in quantity and suitable in quality. It may be derived either from springs, from deep or artesian wells, or from the city supply system. In the latter case the water often needs to be filtered, particu-

larly if used in white porcelain tubs or in marble or tile lined swimming baths. Water used for bathing need not be as clean and pure as drinking water, still it should always be free from organic contamination and disease germs. Hard water is not as suitable as soft water for cleansing the skin, and it must be remembered that hard water is unsuitable for use in the boilers and in the apparatus for warming the water.

As regards the quantity of water required, swimming baths require the greatest amount. The hourly supply should be equivalent to from $\frac{1}{12}$ to $\frac{1}{24}$ of the contents of the tank. Tub baths require somewhat less water, but in figuring the quantity needed for each bath allowance should be made for the water used in the shower at the end of the bath, and also of the additional water needed for cleansing the tub, both of which lead to increased consumption. Showers or rain baths require the least amount of all forms of baths. On an average showers will run from 2 to 5 gallons per minute, and the consumption will depend upon the duration of the spray. In military barracks, school baths and prison baths the limit is usually five minutes, which makes the total consumption exceedingly reasonable as compared with tub or swimming baths.

B. According to the temperature we can distinguish in a general way between *warm* baths, *cold* baths and general baths of an *average temperature*, which are neither hot nor cold. To the latter belong the great mass of baths taken for the sake of their cleansing action or for the purpose of obtaining a mild exhilarating effect. The cold bath is taken for the sake of refreshment, to cool off by drawing out the heat from the body, to increase the blood circulation, and, after a warm bath, to prevent catching cold, as the cold water causes the pores to contract. Warm baths, on the other hand, are taken to soothe local pain, such as rheumatism, and sometimes for cleanliness, but they often have a slightly weakening effect on the system. Between these three kinds lie a great many varieties, such as the excessively cold, the cold, the moderately cool, the slightly cool, the tepid, the warm and the hot baths. To be more specific, we give a statement of the respective temperatures of these varieties, viz.:

Excessively cold	40°– 50°	Fahrenheit.
Cold	50°– 60°	"
Moderately cool	60°– 70°	"
Slightly cool	70°– 80°	"
Tepid	80°– 95°	"
Warm	95°–105°	"
Hot	105°–120°	"

Higher temperatures exist only in the Turkish and Russian baths, where the heat may reach from 120° up to nearly 200° Fahr.

Regarding the means for heating the water for bath purposes, different methods are available, according to the quantity to be heated. In private houses the water-back in the kitchen range usually performs this function, although this is occasionally supplemented by gas heaters and hot water heaters. In larger establishments steam is usually the medium, and different methods of heating may be adopted, such as steam coils in tanks, the direct admixture of steam, and more recently an apparatus called a "Gegenstrom" or counter-stream apparatus, which offers many advantages and works very successfully.

C. According to their purpose, baths, as we have already mentioned, are divided in a general way in baths taken for cleansing, refreshing, exercise and preservation of health or prevention of disease, and in curative baths taken for the treatment of disease. Baths for cleansing comprise warm and cold tub baths, tepid douches, showers and sprays, rain baths, sitz baths, hip baths and foot baths. Baths for refreshing and cooling the body and for the general maintenance of health comprise cold ablutions, sponge baths, shower baths, wave baths, needle baths, swimming baths, river and sea baths, and Turkish baths. Baths for bodily exercise are taken in swimming pools of large bath houses, and in summer time at the river, lake, seashore and in surf baths.

Curative, therapeutic or medical baths comprise a great number of varieties, largely artificial, of which I will only mention a few, viz.: air and sun baths, Russian and vapor baths, mud baths, sand baths, pine needle, sulphur, and brine baths, mineral springs, hot springs or thermal baths, electric and galvanic and massage baths, hydropathic baths, comprising wet sheet packing, sitz and hip baths, ascending, descending or side douches, or combinations of these.

The physiological effect of baths upon persons depends upon a number of factors, such as the mode and frequency of application, the temperature of the bath, the duration of same, etc. In some baths the tonic and stimulating effect is marked, others have a distinct soothing and sedative effect; others, again, are administered for their sudorific and sweat-producing effects, or for their beneficial action in drawing out heat and reducing the temperature; finally, in many baths the desired effect is simply cleanliness.

D. Baths may be classified according to the kind and shape of the bathing appliance, or the means for pouring water over the body. We distinguish in a general way *single* baths and *common* baths, the former including all tub baths, sponge baths, douches, needle baths and showers, the latter the swimming pools, swimming baths, river and sea baths, and the hot air and vapor baths.

All common baths are open more or less to the objection of a possible contagion of the bathers, though the larger the bathing appliance is, and the more frequently its water is changed, the less danger there is of contamination or skin disease.

Another subdivision may be made by considering the various appliances by means of which a bath is taken. We have baths in which water is simply poured over the body, such as sponge baths, rain baths, douches and needle baths, and such baths in which a vessel is used for the immersion of either the entire body except the head, or of parts of the same only (*general* and *local* baths), such as tub baths, hip, sitz, foot baths and swimming baths.

The simplest form of bath consists in the ablution of the whole body with cold or tepid water by means of a sponge. This is the ordinary so-called *sponge bath*, and where other bathing facilities are lacking this should be taken daily. Many persons, however, restrict the daily ablution only to the exposed parts of the body, viz., the face and the hands, while other parts of the body receive a washing only at rare intervals. The wet sponge should be applied to face, neck, and chest; to the armpits, arms and hands; and to the groins and the feet, where the skin perspires more freely. In another form of sponge bath the bather stands in a large shallow tub, and water is poured over his entire body, generally from a large sponge.

Water is also applied to the body by means of douches, or showers and sprays. The spray may be descending, ascending or from the side, and it also has different names according to the part of the body to which it is applied. The words "douche" and "shower" are often used indiscriminately, but in order to be strict one must distinguish between them. The douche consists of a compact, solid descending stream of water of varying size and force, whereas in the shower or spray the water issues through numerous small apertures in a finely divided stream under a moderate pressure, and from either a sprinkler-shaped or a ring-shaped shower. The douche is very intense in action and is not used to any great extent in ordinary

bathing, whereas the spray or shower is very popular. On account of its frictional impulse the douche is used in hydrotherapeutic baths. We have head showers, side sprays or upward jets, and in the needle bath we find a combination of all these, applied in minute jets to the whole body by a series of vertical and horizontal perforated ring tubes. The showers are either fixed showers or hand sprays, operated by the bather or by attendants. The overhead shower may be fixed so as to give a vertical descending stream, or more frequently nowadays it is placed inclined, so as to prevent the water from striking the head of the bather. This last special form of shower is commonly designated as the "rain bath." All of the appliances mentioned are generally arranged to supply either warm or cold water to the body, but very often the shower is merely fitted up for cold water, in connection with a tub bath, taken for cleansing purposes, it being a good practice to end a warm bath with a moderately cold douche, which closes the pores of the skin and thus prevents the person from catching cold. A modification of the shower or douche, in which hot and cold water are used alternately, is called the "Scotch douche."

The second division of bathing appliances comprises all forms of baths in which the body is immersed in water. This, in the broadest sense, includes the plunge bath, the swimming pool, and river and sea baths. In a restricted sense, those appliances in which the bather sits or lies down, but cannot otherwise alter his position, are called bath tubs. Of bath tubs we have many varieties, differing in shape, size and material. We have full bath tubs, in which the whole body may be immersed up to the neck, and half baths, such as sitz tubs, foot baths, hip baths and bidets, used for bathing special parts of the body. A special form of bathing appliance, used in houses on the Continent, but not as a stationary fixture or connected with the plumbing system, is the so-called "wave bath," which by the motion of the bather causes the water to impart to the body a feeling similar to that of the waves in the sea bath.

Of the different shapes of bath tubs—the tapering shape, the French shape with parallel sides, the tub with both ends rounded, the shallow tub, etc.—it is not necessary to speak. The maintenance of cleanliness of tubs and hygienic considerations require that their interior surface be of smooth and non-absorbent material and

that they have well-rounded corners. The rougher the surface is, the more difficult it is to remove dirt and soap.

Bath tubs are manufactured of many varieties of materials. Wooden tubs are rarely used, except for medical baths where the water is charged with salts or minerals, *e. g.*, sulphur baths. While wooden tubs are cheap, they do not last long; they soon become leaky when dry; the wood absorbs filth, and when kept wet it soon rots away.

The cheaper metal tubs are made of zinc, whereas the better class of tubs consist of the more expensive copper. The American copper tubs are really wooden boxes lined with varying weights of tinned and planished sheet copper, whereas the English and Continental copper tubs are heavy metal tubs, standing free and requiring no wooden casing for support. Copper tubs are either polished or tinned, and sometimes they are nickel or silver-plated. Zinc and copper tubs may be painted inside with special bath enamel and made to look quite inviting. In England japanned and enameled copper is used, the enamel being put on in a similar way to the enamel of the iron American tubs.

The inside of cast iron bath tubs may be either painted, galvanized or enameled. The latter process is now much perfected, enameled iron baths being obtainable which are in appearance and general durability nearly equal to the more expensive solid porcelain tubs. Iron bath tubs are either provided with wooden casings, or more usually stand free on the floor and raised on iron legs. The top rim consists either of polished wood, or more recently it is formed as a glazed roll rim with the tub, thus doing away entirely with all surrounding woodwork.

A modification of the metal tub is the steel-clad bath tub, consisting of a shell of steel lined with copper. Bath tubs are also made of indurated fibre, painted on the inside with a special kind of enamel, which resists the action of soap and water, and quite recently tubs have been manufactured of cast aluminum.

The glazed porcelain or fire clay tubs are very solid, durable and cleanly. Up to a recent date such tubs were made in England exclusively, but now the American potteries have succeeded in manufacturing the same article, which compares very favorably with the imported tubs. Of course, all porcelain tubs require more hot water than metal tubs, and this difference is often quite noticeable in

private houses, though not so much in bathing establishments, where they are in more or less continuous use and do not become chilled during the intervals between bathing. Porcelain baths are finished on the top edge either with polished hard wood or with a marble capping, or else they have a glazed moulded rim.

Other varieties of bath tubs are the tile-lined tubs and tubs lined with marble or slate, but these have the drawback that the joints may leak and that dirt collects in the square corners which is hard to remove. We finally have marble and stone (sandstone or granite) tubs cut out of a solid block, and therefore very heavy and very expensive, and tubs made of annealed glass, of particular service for hospitals.

Larger bathing pools or piscinæ, in which several persons may bathe together, and can move about but not swim, are generally masonry tubs, lined either with smooth cement or with tiles or marble. Such tubs are usually sunk halfway or more in the floor, and reached by several marble steps leading into the bath.

Plunge or swimming baths are of two kinds, viz.:

1. The swimming baths, erected in rivers, lakes or at the seashore, which are available only during the warm season of the year.

2. Artificial pools, basins or tanks, constructed of masonry and lined with white marble or glazed tiles, in which the water is usually moderately warmed during the cold seasons, so as to enable the use of this form of bath the year round.

Both classes of baths are adapted only for pleasurable and healthful physical exercise of body and limbs, and the open air swimming baths especially for cooling off and refreshing the body, though in the latter case cleanliness may also to some extent be secured. Still it is a fact beyond dispute that in the summer time, and particularly during heated terms, many people take a bath in the river or at the seashore, not from a desire to become clean, but for the sake of enjoying the practice of swimming, or for the cooling, invigorating and exhilarating effect of the bath. On the other hand, the swimming pools or basins in public and Turkish baths are not in any sense intended as cleansing baths, as the use of soap in them cannot be permitted. They therefore require the provision of special foot baths and showers, where all bathers must take a cleansing bath before they are permitted to enter the plunge. Even after this is done each bather helps to a certain extent to pollute the water, and unless

the supply is continually and constantly changed the water is liable to contamination. From time to time it is well to empty the whole contents in order to clean the sides and bottom of the bath. Hence swimming baths require a very large quantity of water, and are in every respect expensive to maintain.

In vapor and steam baths, or the so-called Russian baths, the bather is surrounded by moist air of 104° to 132° Fahr., and in the Turkish bath dry air of a high temperature (from 140° to 200° Fahr.) is used, which opens up the pores and causes the skin to perspire profusely, and so secures a thorough cleanliness of the body. These are followed by shampooing, washing and kneading of the skin, by hose sprays, a needle bath or a cool plunge bath, and terminate with thorough drying, dry rubbing or massage and rest. The limits of this paper do not permit an extended discussion of these special forms of baths, and for like reasons I must omit a description of any of the medical baths.

E. As regards location, we may finally distinguish between baths in private houses, public bath houses, people's baths, barber shop baths, hotel baths, tenement baths, baths in factories or industrial establishments, school baths, baths in military barracks, in prisons, hospitals and institutions, baths attached to gymnasiums and club houses, river baths, sea and surf baths, and mineral spring, curative and therapeutic baths. A brief reference to each kind of bath will be made in the following notes.

HOUSE BATHS.

Beginning with baths in private dwellings, we find these more or less luxuriously fitted up, according to the size, character, rental or cost of the house. By far the majority of baths in dwellings are full tub baths, to which an overhead single or combination shower or douche is often attached. We also find in houses the foot tub, the sitz or hip bath, the bidet, and sometimes a needle bath or a plain form of vapor bath. Bathing pools are not often provided on account of their expense in construction. The walls of bathrooms are either oil painted or finished with glazed washable paper, or wainscoted with tiles or marble. The ceiling may be oil painted and the floor made waterproof with tiling or marble mosaic; large slabs of marble are often placed under the bath tub. Linoleum or cork matting form a good inexpensive floor cov-

ering, which is warm to the feet, smooth and easily cleaned. The ideal of comfort is reached by providing in the bathroom an open fireplace with a wood, coal or gas fire. The writer feels it to be his duty to call in this place again attention to the undesirable and uncommendable American fashion of placing the water closet in the bathroom. In not a few cases the water closet fixture is unsanitary or defective or far from pure, and the bather is thus compelled to breathe foul air from the water closet while taking a bodily ablution. On the other hand, the water closet fixture is useless to the rest of the household while the bathroom is occupied. It is therefore much to be preferred, on æsthetic as well as practical grounds, to provide a separate well-ventilated and lighted water closet compartment.

PUBLIC BATHS.

Public bath houses are established in the larger cities partly to make up for lack of bathing facilities in private houses, partly to provide baths for the traveling public. In Europe only the houses of rich people have bathrooms, whereas in America even small and unpretentious city houses or suburban cottages have a bath tub supplied with hot and cold water. For this reason, and because all hotels and large barber shops have baths attached, luxurious public bathing establishments are not so frequent here as in Europe; in fact, the public baths here are almost exclusively limited to Russian and Turkish baths, fitted up with hot air, moist vapor, electrical and massage baths. Further on I shall refer to the need of unpretentious, cheap baths for the masses, for working people of both sexes.

In his address on "Recent Advances in Preventive Medicine," delivered at a meeting of the American Medical Association in Chicago in 1887, Dr. George H. Rohé, of Baltimore, Md., has shown that, contrary to popular belief, a large proportion of the inhabitants of American cities are deprived of proper bathing facilities. He collected statistics from eighteen cities having no free public baths, which showed that only about 23 per cent. of residences are supplied with bath tubs. He concludes that "five sixths of the inhabitants of these cities have no facilities for bathing except such as are afforded by pail and sponge, or a river, lake or other body of water which may be easily accessible, but in winter even such ources of cleanliness are cut off."

Dr. Rohè's table referred to gives the following figures:

Name of City.	Number of houses in city.	Number of houses supplied with bath tubs.
Baltimore, Md	70,000	20,000
Bridgeport, Conn	6,000	2,000
Cambridge, Mass	9,398	2,315
Charleston, S. C	10,000	500
Cincinnati, O	33,471	6,000
Lancaster, Pa	5,600	1,000
Lynn, Mass	5,800	1,238
Milwaukee, Wis	25,000	3,000
Minneapolis, Minn	17,000	3,000
New Bedford, Mass	5,237	597
Peoria, Ill	7,600	800
Portland, Me	7,188	1,153
Reading, Pa	11,000	1,900
Savannah, Ga	6,000	4,000
Somerville, Mass	2,000	500
St. Louis, Mo	50,000	8,000
St. Paul, Minn	30,000	10,000
Wilmington, Del	12,000	5,000

The need of cheap public baths is therefore apparently just as urgent here as it is in Europe. Such baths are better characterized as "people's baths," under which name they will be spoken of below, and they may be provided by State laws, by the municipality, or by bureaus of charities, or by private charitable associations, whereas public baths are erected by private individuals or firms as a money-paying enterprise.

Large public bathing establishments, in order to be complete, must contain all the different forms of baths described heretofore; in other words, comprise a large number of bath tubs in separate apartments, shower or spray baths, needle baths, a large swimming bath, the water in which must in the winter season be warmed to about 70° to 72° Fahr. In addition to these they must have steam, vapor and hot dry air baths, with dressing rooms, hot rooms, cooling rooms, smoking and reading rooms, rooms for massage and shampooing and for special electrical and hydro-therapeutic treatment. Such buildings require attractive entrances, ticket offices, large waiting rooms for the public, a buffet, barber shop and chiropodist's office, besides rooms for the attendants, laundry, ironing and drying rooms, rooms for storage of towels and soap, boiler and fuel room, and water closets and urinals. All of the above rooms

should be provided in duplicate for men and women, and should be entirely separate for the sexes.

Where the swimming bath is the chief feature of a public bath, it should be located in a large, high, well-lighted and well-ventilated apartment. All swimming baths require preliminary cleaning baths in the form of foot tubs and warm showers. The water in the swimming tank is constantly being replenished, and this should be at such a rate that the whole contents are changed at least once in twenty-four hours. The dressing rooms may be located on the four sides of the tank and a passage carried all around the swimming bath, onto which the dressing rooms open, and which is only to be used by bathers who are undressed. The dressing rooms are about 4x5 feet in size and contain a chair or seat, clothes hooks, boot jacket, mirror, comb and brush. A second passage around and outside the dressing rooms should serve for the communication of the bathers before undressing and after the bath. The swimming bath, therefore, requires an abundance of space, which, in centres of cities, where the price of land is very high, cannot always be obtained.

Where tub baths are the chief feature, bathing cells or apartments are provided, generally on both sides of a large, wide corridor. Here each apartment must be sufficiently roomy not only for undressing, but also for holding the bath tub. It is quite desirable that each tub bath should also have an overhead shower, or at least a flexible hand spray; first, so that at the end of the bath the person can spray the body with pure water and wash off any impurities attaching to the skin from the soiled water of the tub, and second, so that the bather may avoid catching cold by closing the pores of the skin with the aid of a final cool or cold shower. The smallest size of apartment suitable for tub baths is 6x6 feet, but they are sometimes made as large as 8x10 or 12 feet. For shower baths the size of the apartment is from 4x6 feet to 5x8 feet.

The greatest possible cleanliness must be maintained in public bathing establishments, and tubs in particular must always be thoroughly scrubbed and cleaned by the attendants after each bath.

PEOPLE'S BATHS.

Luxuriously appointed baths in costly monumental buildings are suited for well-to-do people, but not for the requirements of the working class of laborers, mechanics, factory operatives,

who often are employed in the midst of dirt or dust of all kinds and are always exposed to different sources of uncleanliness. As with men, so it is with women. While the rich women have ample bathing facilities at home and at the Turkish baths, the needs of the working classes, of the sewing women, the saleswomen and the factory girls are too often forgotten. Even for our domestic female servants opportunities for bathing and cleanliness are seldom thought of, even in the most richly appointed houses and mansions. This explains in part why women bathe less nowadays than in olden times. The poorer classes of the population are debarred from using the public bathing establishments by the price charged for a bath, as well as by other reasons. About the need and desirability of people's baths, therefore, there can be no question. Bathrooms in private houses, public bathing establishments, swimming baths, sea and river baths do not suffice, for they either provide bathing facilities for a part of the year only, or they are limited to the rich class, or in some cases they are located at a distance from the homes and are difficult or expensive to reach.

It is very seldom indeed that tenement houses have any baths; even the so-called "model" tenement houses do not provide bathing facilities. In most tenement houses hot water is unknown, and their occupants have merely the city river baths to go to, which are available only a few months in the year.

Bathing may be rendered more popular by erecting *people's baths*. These should be simple, unpretentious, yet inviting structures, with all necessary means for cleanliness and comfort, but without superfluous luxury. Many hold that such baths should not be free, as the respectable poor unconsciously shrink away from anything that looks like charity. A moderate fee may be charged, sufficient to cover the cost of maintenance. If there is at present too little appreciation of the healthful effects of bathing in the lower classes of population, it is largely on account of the lack of baths in our cities. Let bathing opportunities at reasonable expense be provided, and the people will surely make use of them, and bathing will once more become popular with the masses, as it was centuries ago. With increased care of the body and bodily cleanliness will go hand in hand cleanliness in the clothing and underwear, as well as in the habitations, and this in turn will lead to a vast improvement in ventilation and in the general health conditions of a community. It will also tend to lessen the

ravages of contagious diseases, which are particularly marked where there is absence of cleanliness.*

The question here arises, what form of bath is best adapted for people's baths? It is plainly evident that the marble or tile-lined swimming tank, filled with limpid and crystal-like water, is not well adapted to the needs of the workingman, for it is not a cleansing bath; in fact soaping and cleansing are excluded, besides it requires very large quantities of water, which must be heated, and it is generally expensive in construction and maintenance. Neither is a porcelain-lined, pure white bath tub suitable, for good tubs are expensive, and in these a workingman cannot so readily become clean; in fact he would be immersed, toward the end of the bath, in his own befouled water. He would require several changes of the water in the tub, hence more water and correspondingly more time to become clean. After he is through with the bath it would require a good deal of cleaning and scouring to remove the dirt attaching to the sides of the tub; hence would result increased labor of the attendants to restore the tubs to their former purity and greater cost of running expenses.

In the Berlin Health Exhibition of 1883 the solution of the problem of providing cheap baths for the masses was first indicated by the people's baths of Grove-Lassar. The novelty consisted in the use of the inclined overhead tepid spray in place of the tub or the plunge. This was not strictly new, as it had been used previously in prisons and military barracks, but the suggestion to use it for people's baths was decidedly novel.

No form of bath is better adapted, from a hygienic and economical point of view, for working people than the tepid shower or rain

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* While I was preparing this article for publication, a bill was signed and approved on April 18 by the Governor of the State of New York, which provides for the establishment of free public baths in cities, villages and towns in the State. The Act, which is known as Chapter 361 of the Laws of 1895, provides substantially that all cities of the first and second class shall establish and maintain such number of free public baths as the local Board of Health may determine to be necessary; that each bath shall be kept open not less than fourteen hours for each day, and that both hot and cold water shall be provided. It also states that the erection and maintenance of river or ocean baths shall not be deemed a compliance with the requirements of the law.

This law, I am informed, was advocated and persistently pushed by Mr. Goodwin Brown, member of the New York State Commission in Lunacy, and to him is due the credit of having secured the first legislation on the subject of baths ever had in this country. Three years ago he secured the passage of a bill making the erection of public baths permissible, while the present law makes it a mandatory measure. W. P. G.

bath. It is the simplest, quickest, cheapest, cleanest and withal best bath for people's bath houses; the one which requires the least space, the least time, the least amount of water, the least fuel for warming water, the least attendance, the least cost of maintenance. Standing under such an inclined spray the bather can soap and rub his body, rinse it with more clean warm water, which falls down in a gentle yet invigorating rain or fine jets from the neck downward, and finally let some pure colder water flow to increase the mechanical and tonic effect and to prevent catching cold. All waste water flows away immediately. Such a simple bath at once cleanses, refreshes and invigorates the person; it therefore has the cleansing and tonic effect combined. The rain bath has, for all these reasons, become the modern favorite method, and is destined to be the bath of the future for people's baths.

Success or failure of a people's bath will largely depend upon its suitable location and construction. In order to popularize bathing, and render people's baths useful, serviceable and well patronized, they should be located within the centres of the most crowded city districts, preferably on streets forming the main line of traffic. The State or municipal government should erect such baths, or at least provide the building site, on which charitable associations may put up the building. The aim should be to make all people's baths self-supporting, and medical societies and public health associations can accomplish much by encouraging their erection.

The exterior of the building should be easily recognizable in order to be readily found, but all outward display of lavishness in the architecture of the building must be avoided, as it would only have a tendency to keep poor people away. The construction and fitting up of the interior should likewise be economical, yet substantial, cleanly and inviting, but without any of the refinement of details found in the large public bath houses.

Where a source of steam supply is available, as for instance near electric light and railroad stations, near waterworks pumping stations, disinfecting stations, and at all larger industrial establishments, the running expenses of the baths, for heating water, warming the building, etc., may be reduced by making use of the exhaust steam of the boiler plant.

A building containing people's baths requires the following rooms, viz.: 1. For use of the public or bathers: Entrances, vesti-

bules and waiting rooms with benches or seats, reading table and drinking fountain, generally separate for men and women, except where in the same bath different days of the week are assigned to the sexes; corridors leading to the bath apartments; bath apartments with douches and dressing rooms; water closets and urinals, which must never be omitted, and which should have simple and automatic plumbing.

2. For use of the management: Ticket office; room for attendant, boiler room or place for warm water apparatus; closets for storage of towels, soap, etc.; drying rooms, laundry and ironing rooms, and place for storage of fuel.

Vestibules are required to prevent drafts and to protect the bathers against catching cold. Spacious, cheerful and warm waiting rooms are required in which the public may wait for a bath and also sit to cool off after a bath. The floors, walls and seats of the waiting room must be so arranged that they can be frequently washed to insure constant cleanliness and inviting appearance.

The ticket office should, wherever practicable, be so arranged that the agent can overlook the waiting room and the corridors leading to the bath.

The bath apartment proper should, for the sake of privacy, be divided off by partitions into a number of separate compartments. Each compartment is again subdivided and contains an outer dressing room and in the inner room the bath proper. All floors, walls, partitions and ceilings must consist of non porous material, which is not readily destroyed by the action of soap, warm water, or dampness and vapor. Perfect drainage arrangements are indispensable and each bath compartment must have its own separate waste pipe. Good daylight and artificial illumination are desirable, though too many large windows have a tendency to create chilling drafts Abundant provision for ventilation is necessary, and all partitions must be raised from the floor to promote the circulation of air.

The floor should be water-tight and may be either of cement, asphalt, terrazzo, marble mosaic or of unglazed tiles. In the bath proper the floor is frequently moulded in cement in such a way as to have a depression or sunk basin, suitable as a foot bath.

For the finish of the walls of the bathroom slate, marble, annealed glass or tiling is desirable, whereas the dressing room may

consist of enamel-painted iron, or of iron ribs, iron lathing and hard plaster or cement, or else it may be of wood, well oiled.

On the ceiling unprotected iron should be avoided, as it rusts from vapor of condensation and also causes disagreeable dripping.

The size of the bath compartment should be approximately 4 feet wide and 8 feet deep. The entrance from the corridor should have a light flap door, with an inside latch and a lock on the outside, for which the attendant has the pass key. The bath proper is separated from the dressing room either by a fixed partition, with door, or more usually merely a curtain of rubber or cheese cloth made waterproof.

The shower bath should contain the inclined overhead spray, with or without regulating valve and additional cold water shut-off; on the women's side it is desirable to add an ascending douche or bidet. There should be a hinged seat for the bather, or else a footstool, and where the floor is not shaped in basin form, a small galvanized iron foot tub is often provided. Each bath should have a perforated soap cup.

The dressing room should contain a seat, hat and clothes hooks, bootjack, cuspidore, a wooden latticed grating or a cork mat, and sometimes a shelf, with mirror, brush and comb. On the outer side of the bath apartment door a slate should be hung, on which the attendant notes the time when the bath is occupied in order to control the bathing. One-half hour is generally fixed as the limit for each bath.

TENEMENT BATHS.

A great step forward in the improvement of tenement houses would be made if they were provided with bathing facilities. As at present constructed, even the best of them, including some of the so-called "model tenement houses," have absolutely no bathing facilities. The reason for this is, I presume, to be found not so much in the first cost of tubs, as in the fact that tubs without hot water would rarely be used, except during the heated term. It is also probable that the bath tubs would not be rightly used, that the waste pipes would soon stop up, that the bath tub would not be properly cleaned, and finally that, being abused in other ways, it would soon become unfit for use.

I am firmly convinced that the rain or shower bath offers many advantages for tenement houses. It is not necessary to provide

each tenement with a bath. A few simple and inexpensive, clean and inviting shower baths erected in a well-lighted corner of the basement would give the tenants opportunity for frequent thorough ablutions in tepid water, and would have a tendency to lead to increased cleanliness in the tenements, and thereby to an improvement of the morals and a possible reduction in crime and vice.

FACTORY BATHS.

Every large manufacturer who is interested in the welfare of his employés should consider the question of providing baths for his workmen. Many work people living in tenements have at present no facilities for keeping the body clean. Factory employés are particularly exposed to soiling and defilement of the skin through the nature of their occupations. They usually perspire very freely while at work, and the increased action of the skin, combined with the dirt and dust of their surroundings, make it particularly desirable that they should bathe in order to become clean, to keep in health, and so as to be in best condition for the hard manual labor performed in the factory. The manufacturer would secure higher results in the work performed by his operatives if he would provide plain facilities for frequent bodily ablutions.

Neither bath tubs nor swimming baths are well adapted to the needs of workingmen in factories. A dusty or dirty laborer, a factory operative manipulating animal or vegetable matters, paints or chemicals, and the engineer and fireman who spend the day in the hot engine or boiler room, stoking the fires, shoveling coal and oiling the engine, would soon, if they take a bath in a tub, sit immersed in a dirty fluid, and cleanliness would be under such circumstances difficult to attain. For these the tepid douche or rain bath offers immense advantages, which are so plain and apparent that it seems unnecessary to waste any words about it, except to point out that, inasmuch as waste or exhaust steam is always available in manufacturing establishments, the heating of water for bath purposes can be very cheaply and quickly effected. The expense of providing and maintaining tepid rain baths for workmen in manufacturing establishments would therefore be very small.

SCHOOL BATHS.

Experience teaches that the air of schoolrooms is badly contaminated by the emanations from the children's bodies and

by the odor from their clothing. All attempts to improve the sanitary condition of schools will fail to accomplish their object thoroughly if means are not provided to cleanse the bodies of the children. Cleanliness of school children will make the ventilation of the schoolrooms an easier problem, and further than that, it will tend to increase the appreciation for cleanliness in the lower classes, and thus indirectly stimulate bodily—and often moral—purity in the home circle.

The first one to suggest the advantages and necessity for school baths was, I believe, Dr. Alfred Carpenter, of Croydon, England. In his lectures on "Preventive Medicine in Relation to Public Health," delivered in 1877, he discussed the subject as follows:

"Every public elementary school ought to have a proper washing place, so that the children might wash the whole of the body at least twice a week, as well as their hands and face. There should also be a washing place for clothes, with a drying closet attached, which could dry the clothes as quickly as possible, and be so arranged that cloth clothes might be cleansed and disinfected, as well as linen clothes washed.

"Is the custom of wearing the same dirty garments day after day, getting daily more filthy, an unavoidable one? It is this custom which makes the air of rooms so unwholesome in which the lower classes of children assemble, and which frequently produces the first seeds of evil in the constitution, especially when they go into the room damp from the effect of a drizzling rain. Every one accustomed to a badly ventilated schoolroom knows that it is the smell from damp and dirty clothes which is the principal source of the offensive atmosphere. Even if the clothes will not wash, an exposure in the drying closet to a temperature of 350 degrees will not hurt their texture, whilst it will entirely destroy any lurking seeds of infectious disorders which might be clinging to them, as well as destroy the seed beds themselves; and in the possible case of infection being brought into the school in the clothes, would, in the majority of instances, prevent it from spreading among the pupils."

* * * * * * * * * * * *

"I contend that a public elementary school should possess:

"1. Access to a bath, in which every child should be required to bathe twice a week. Every day would be better still.

"2. A washing place, in which they should be obliged to wash daily.

"3. A room in which the hair should be combed and the head cleaned every day, or oftener if necessary. These operations should be superintended by some person, who should see that the elder children attended to the younger as well as themselves, and so teach them to be careful of others.

"4. A laundry, in which the clothes which required it could be washed.

"5. A drying closet, capable of being heated to 400 degrees F., in which washed clothes and also all damp garments could be quickly dried. This would be a great boon to the children on wet days."

"I contend that all these are necessary for the education of the great mass of our poor, as much as, if not more than, a knowledge of geography and astronomy, or even of history. It will be impossible for the people to be godly until they are instructed in the way of cleanliness. Cleanly children will acquire a dislike for personal dirt and retain it to the end of their lives. They will make more effort to raise themselves from below the level of brutes to that of Christians than they otherwise would do if allowed to remain accustomed to filth. Use becomes second nature, and second nature in a century or two becomes instinctive.

"It is only by educating our poorer classes in cleanliness in early life that we shall make them, as a whole, love it for its own sake, and hate dirt and those habits which tend to make man lower than the beasts of the earth, too often now arising from an acquaintance, an intimate association, with dirt and dirty homes among the poor. Poverty may be clean, and with cleanliness the first step will have been taken to do away with the evils which follow in its train, and that health secured which riches without cleanliness cannot possibly purchase."

Of the three classes of baths, namely the tub bath, the shower bath and the swimming bath, the first named, viz., tubs, are not well suitable for schools, as it would require a very large number of fixtures to bathe all the children, for which the space cannot always be found in a school building, and the process would naturally be slow and result in serious inconvenience, also because tub baths would require the outlay of a vast sum of money.

Swimming baths in schools would be good as far as giving an opportunity for bodily exercise is concerned. For a cleansing bath, however, the swimming bath is not well suited, for reasons explained heretofore, and here again the tepid shower or rain bath offers immense advantages.

To Prof. Flügge and Mayor Merkel, of the German University town of Goettingen, belongs the credit of having first tried the experiment of rain baths in the public schools, about 1885.

Groups of children are bathed together, and care is taken not to give the baths at the end of the school session, so that the children will not catch cold in going home. After some use of the baths it is found that the children enjoy them, that their minds become more active and attentive; that the baths induce better cleanliness in clothing and underwear; that the parents pay more attention to the cleanly appearance of their children; and finally, that the air of schoolrooms is greatly improved.

At first some teachers and Boards of Education raised trivial objections to the introduction of bathing in schools. They claimed that the school was not the place to educate children to appreciate

the cleanliness obtained by bathing, that this belonged to the family; fear was expressed lest the children would catch cold, whereas experience has proven that the bath hardens the body; others objected to the cost, claiming that people's baths and not school baths were required; a few, finally, objected to the bathing being made compulsory, while experience in the schools demonstrated the fact that the children soon all become eager to bathe.

In German schools bathing has become very popular and the movement is rapidly extending, so much so that recent school buildings are rarely constructed without rain baths for boys and girls in the basement.

In this country there are as yet but few school baths. One on the rain bath principle was erected in a high school at Scranton, Pa., a year or two ago. At Manistee, Mich., a company erected people's baths on the rain bath principle in 1885, and one of the aims of the company was to get as many children as possible to take regular baths by distributing tickets to the school children.

From a paper in one of the Michigan State Board of Health reports I learn that while the Emeline Bath Co., of Manistee, Mich., furnishes tub baths for those who desire them, it heartily recommends the shower bath as preferable, enumerating the following advantages:

"1. In cases where one bather follows immediately after another the atmosphere of the shower rooms is the purest, as the spray from the shower absorbs the impurities of the air and carries them into the sewer on the same principle that the rain purifies the air outside.

"2. The patron of the shower bath does not come in contact with anything that the former occupant came in contact with, except the rack which he stands upon and the seat which he sits upon. This seat is varnished with shellac, and may be showered by the occupant.

"3. The water of the shower bath is continually changing, so that the bather is using fresh water to every part of the body.

"4. The occupant of the shower room has easy access to all parts of the body, owing to the upright or sitting posture, while the occupant of the tub can reach only one-half of his body at a time, being obliged to turn in the tub to reach the other side.

"5. The occupant of the shower bath has no resistance of water pressure to contend with, while in the tub bath the feet and that portion of the body resting upon the bottom of the tub are under the pressure of nearly one-half pound to the square inch, which of course to a certain extent resists the throwing out process of the pores."

NOTE.—The E. B. Co. does not recommend the use of soap. Instead, one-fourth ounce of salts of tartar and one-fourth ounce of borax to one quart of water is

found to produce an alkaline sufficiently strong to cut the oil of the body, and at the same time the borax is found to have a cooling effect on the skin.

In February of the present year a Sub-Committee on Baths and Lavatories of a Citizens' Committee in New York City made a report, recommending the erection of people's baths in the tenement districts, and also the equipment of public schools, where practicable, with baths in the basements, and favored the adoption of the rain bath system, because "there is no waste of water, because the cost of erection is very moderate, and because the system is characterized by cleanliness and simplicity."

BATHS IN MILITARY BARRACKS.

For military barracks tub baths have repeatedly been tried and abandoned because of their expense. While the swimming baths are excellent for bodily exercise, no system is so well adapted to military buildings as the rain bath. This fact became apparent many years ago; shower baths were used in military barracks for cleaning purposes long before they were adopted for people's baths. Dr. Dunal, a surgeon in the French army; Dr. Bresgen and Dr. Munnich, of the German army, and Dr. John S. Billings, U. S. A., introduced or recommended the form of bath known as the "rain bath."

BATHS IN PRISONS.

It is obvious that the advantages of the rain or shower bath over the tub applies also to the bathing of prisoners. In some State's prisons the inmates are given weekly baths by means of flexible hose sprays. The fixed overhead inclined shower is a better arrangement, for two reasons: first, it does away with the need of an assistant to spray the person, and second, a fixed douche, under which the bather places his body voluntarily, does not give rise to the popular belief, which results from the use of a flexible hose spray in the hands of the attendant, viz.: that prisoners are often sprayed with cold water as a means of punishment.

HOSPITAL BATHS.

Hospital trustees or managers can do much to further bathing habits by providing ample and proper bathing facilities. In hospitals we find several forms of baths in use, such as the fixed and the portable bath tub, the latter being placed on rollers; also showers, sudorific and hydro-therapeutic baths. Tub

baths are an expensive form of bath, and, moreover, they require a great deal of space, as the tubs in hospital bathrooms must stand entirely free in the room, so that the nurse or attendant can reach it on all sides.

For that particular class of hospitals where the various forms of insanity are treated, *i. e.*, in cases where the brain only is diseased, while the body may be in a healthy state, the rain bath offers many advantages. A rain bath for bathing patients has recently been completed under the direction of the writer at the State Hospital at Utica, N. Y.* In the fifty-second annual report of the managers of that institution it is stated that "the new bath house marks an epoch. * * * With this splendidly equipped spray bath patients can be bathed with the utmost convenience, safety and dispatch. It is destined to become the accepted method of bathing the insane in public institutions." In the report of the Medical Superintendent, Dr. G. Alder Blumer, the new bath house is thus described: "The crowning glory of the year has been the completion of the general bath house. For a detailed description of this structure the attention of the managers is called to the accompanying elaborate special report by Mr. Wm. Paul Gerhard, C. E., who planned the work and superintended its execution. Briefly stated, it is the so-called 'rain bath,' first popularized in Germany, which substitutes for the ordinary tubs a system of sprays which are supplied from specially constructed generators with warm water. To Dr. S. Baruch, of New York City, is due the credit of introducing the system into this country. His pamphlet, 'A Plea for Public Baths,' published in 1891, was followed by the erection of a rain bath at the New York Juvenile Asylum. Others on a larger scale followed, some of which were planned and designed by Mr. Gerhard, who scattered much good seed through the medium of his pamphlets on 'The Modern Rain Bath.' The new system secured the immediate endorsement and encouragement of the State Commission in Lunacy. A copy of one of Mr. Gerhard's pamphlets fell into my hands and led to the engagement of the author's services at Utica. Our splendidly equipped bath is the result of that engagement. No one who has not had the opportunity to compare practically the old with the new method can form an adequate idea of the comfort and convenience

* See the author's pamphlet on "The Rain Bath at the Utica State Hospital."

of the rain bath adapted to the needs of a large hospital for the insane. All ward bathing is now a thing of the past, only to be sanctioned in special cases. In a word, *the rain bath is an ideal method of ablution.*"

BATHS FOR CLUB HOUSES AND GYMNASIUMS.

While club houses are often furnished with bathing facilities in the shape of bath tubs, the gymnasiums require, as an adjunct to bodily exercise and gymnastics, either a swimming bath or cold and tepid showers.

BATHS FOR HOTELS AND BARBER SHOPS.

It is usual, in our large cities, to provide in all hotels, as well as in the larger barber shops, bathing facilities, largely for the use of the traveling public, and bath tubs of various materials and fittings have in the past been fitted up for the ablutions of the body.

Inasmuch as the cleansing of the skin is the chief consideration and object of these baths, the new form of tepid rain or shower bath appears to be eminently well adapted.

MEDICAL BATHS.

Those forms of medical baths in which the water used is derived from a mineral or hot spring, depend entirely for their location upon the locality of the springs. As it is not the object of this article to discuss medical baths in detail, the subject must be dismissed with these few words.

RIVER AND SEA BATHS.

The location of all river and sea baths depends upon the character of the water, upon the shape of the river banks or upon the condition of the beach. Baths situated upon the banks of a river should preferably be located *above* a city or town, or at least above the sewer outlets, and remote from drains or surface ditches carrying wastes from industrial establishments, chemical factories, gas works, etc. Such baths are either stationary or floating, and can in both cases be used by the public only during the summer season.

In locating sea baths, it is well to choose a locality outside of the harbor proper, where the sea water is pure, where the beaches are not defiled by city garbage, where there are no treacherous currents or dangerous undertows and where the beaches are free from pebbles or larger stones. A sandy, hard beach, with gradual descent, forms the best bathing ground.

River and sea baths are patronized by the masses in hot weather, because then the body cannot readily give off its heat, while the cool water draws out the surplus heat from the body, and thus refreshes and tones up the system.

The beneficial effect of sea baths is due to a number of other factors, such as the composition of the sea water, the invigorating shock caused by the impact or mechanical pressure of the waves upon the body, to the exercise in the open air and the breathing of the pure sea air. Thus, sea bathing may be considered an important aid to the preservation of health, and even the warm sea water baths taken in tubs may be of benefit to the constitution of weaker persons who cannot take the surf baths.

THE END.

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